



Canadian Environmental  
Assessment Agency

Agence canadienne  
d'évaluation environnementale

445 - 123 Main Street  
Union Station  
Winnipeg, Manitoba R3C 4W2

123, rue Main, pièce 445  
Union Station  
Winnipeg (Manitoba) R3C 4W2

October 29, 2008

**CEAA File No.: MP2006-040**

**NRCan File No: MA-503**

**MC File No.: 5353.00**

Mr. Bryan Blunt  
Manitoba Conservation  
Environmental Assessment and Licensing Branch  
160 - 123 Main Street  
Winnipeg, Manitoba R3C 1A5

Dear Mr. Blunt:

**SUBJECT: St. Joseph Wind Energy Project - Manitoba**

As requested in your letter of July 29, 2008, and as part of our participation in the co-operative environmental assessment of the above noted project, we are providing comments on the environmental assessment information submitted by the proponent. The document reviewed is:

*Hélimax, 2008. St. Joseph Wind Energy Project – Environmental Impact Study Report. Prepared for St. Joseph Wind Farm, Inc. and submitted to CEAA and Manitoba Conservation. July 2008. 144 p. (Volume 1) and Maps and Appendices (Volume 2).*

A brief summary of comments received from federal authorities reviewing this document is included in this letter. For important details, please refer to the original responses that are attached to this response.

**Environment Canada (EC):**

*Orientation of the turbines:* Numerous turbine strings oriented in an east-west direction may increase mortality risk to migrating birds and bats.

*Lighting:* Proponent should be encouraged to seek alternatives to incandescent lighting. The commitment to discuss lighting with CWS is acknowledged.

*Disruption of bird nests for migratory birds:* Vegetation clearing should avoid the period between April 15 and July 31 to minimize disturbance to breeding migratory birds. EC supports the proponent recommendation to have a trained biologist on site if vegetation clearing is required during the breeding season.

*Mortality monitoring/follow-up:* Two years of monitoring for birds and bad mortality are recommended, with the program developed with EC (Canadian Wildlife Service). EC further recommends the proponent discuss mitigation approaches or strategies if mortality monitoring identifies concerns.

*Monarch Butterfly (SARA special concern):* Potential impacts of the project on monarch butterflies should be assessed, with provisions for monitoring.

**Natural Resources Canada (NRCan):**

*Federal Assessment requirements:* The EIS should clarify certain aspects required in the federal assessment, specifically describing scope of project and assessment, and clarifying federal roles and responsibilities.

*Further information required:* The specific number, size, and location of the turbines will be required for NRCan to complete its assessment. Other information on project components and activities is requested including for: permanent dwelling locations, noise receptors, gravel pits, temporary concrete batch plants (if any), and vegetation clearing.

**Health Canada (HC)**

*Noise:* HC provided a number of comments regarding noise, including recommendations for identification of sensitive noise receptors, comments on noise modelling, and recommendations for application of mitigation.

**Parks Canada**

*Visual Impact on Neuberghal National Historic Site:* Notwithstanding previous efforts on the part of the proponent in relocating turbines to minimize visual impact, Parks Canada recommends relocation of turbines 139-142; 123-128; and 154 to 158 due to potential effect on the heritage value associated with the Neuberghal Street Village National Historic Site.

**Transport Canada (TC)**

*Navigable Waters Protection Act (NPPA):* Transport Canada requests that the navigability of the water bodies within the project area be determined. If the water bodies are deemed navigable, then applications under the NPWA will be required, if crossings involve these water bodies. The proponent is advised to submit applications to the Navigable Waters Protection Program with location options.

Further information can be found at the following website:

<http://www.tc.gc.ca/marinesafety/oep/nwpp/guide.htm>

*Aeronautical Obstruction:* Aeronautical Obstruction Clearance Forms should be submitted to the Transport Canada, Aerodromes & Air Navigation for the wind towers.

**Fisheries and Oceans Canada (DFO)**

*Stream Crossing information and recommendations:* Design details for specific stream crossings are requested. DFO Operational Statements are noted, specifically *Manitoba Operational Statement for High Pressure Directional Drilling* ([http://www.dfo-mpo.gc.ca/regions/central/habitat/os-ao/prov-terr/mb/os-ao09\\_e.htm](http://www.dfo-mpo.gc.ca/regions/central/habitat/os-ao/prov-terr/mb/os-ao09_e.htm)) and *Manitoba Operational Statement for Isolated or Dry Open Cut Stream Crossings* ([http://www.dfo-mpo.gc.ca/regions/central/habitat/os-ao/prov-terr/mb/os-ao22\\_e.htm](http://www.dfo-mpo.gc.ca/regions/central/habitat/os-ao/prov-terr/mb/os-ao22_e.htm)).

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**Royal Canadian Mounted Police (RCMP)**

*Radio Frequency issues:* The RCMP raised questions regarding radio frequency studies, and whether Manitoba Telecom Services (MTS) sites were taken into account.

As noted above, please refer to the attached letters from federal authorities, for specific advice related to the above summary comments.

Thank you for your consideration of these comments in the provincial review. My sincere apologies for the delay.

If you have any questions concerning this environmental assessment, please contact me at (204) 984-7935 or by e-mail at [wendy.botkin@ceaa-acee.gc.ca](mailto:wendy.botkin@ceaa-acee.gc.ca).

Sincerely,

Wendy Botkin  
Senior Program Officer

Encls.

cc.

Teresa LeMay, NRCan  
Reg Ejeckam, EC  
Alex Beckstead, RCMP  
Ashley Presenger, DFO  
Zeena Mohammed, TC  
Katherine Cumming, Parks Canada  
Rick Grabowecky, HC  
Karl-Éric Martel, Hélimax

**Distribution List**

<p>Teresa LeMay Environmental Assessment Officer Natural Resources Canada Environmental Assessment Coordination 580 Booth Street, 3rd Floor, Room: A7-5 Ottawa, ON K1A 0E4 Tel: (613) 992-8791 Fax: (613) 995-5719 E-mail: <a href="mailto:tlemay@nrcan-rncan.gc.ca">tlemay@nrcan-rncan.gc.ca</a></p>	<p>Corey Simpson Environmental Assessment Officer Natural Resources Canada Renewable and Electrical Energy Division 580 Booth Street, 11th Floor, Room C5-6 Ottawa, ON K1A 0E4 Tel: (613) 943-5913 Fax: (613) 995-8343 E-mail: <a href="mailto:cosimpso@nrcan-rncan.gc.ca">cosimpso@nrcan-rncan.gc.ca</a></p>
<p>Reg Ejeckam Environment Canada 150 - 123 Main Street Winnipeg, MB R3C 4W2 Tel: (204) 984-3522 Fax: (204) 983-0960 E-mail: <a href="mailto:reg.ejeckam@ec.gc.ca">reg.ejeckam@ec.gc.ca</a></p>	<p>Anita Champagne Gudmundson Environmental Management Transport Canada P.O. Box 8550 3rd Floor, 344 Edmonton Street Winnipeg, MB R3C 0P6 Tel: 204-983-3388 E-mail: <a href="mailto:champan@tc.gc.ca">champan@tc.gc.ca</a></p>
<p>Margaret Keast District Manager Prairies Area, Manitoba District Department of Fisheries &amp; Oceans 501 University Crescent Winnipeg, MB R3T 2N6 Tel: (204) 984-1334 Fax: (204) 984-2401 E-mail: <a href="mailto:Margaret.keast@DFO-MPO.gc.ca">Margaret.keast@DFO-MPO.gc.ca</a></p>	<p>Katherine Cumming Parks Canada Resource Conservation Winnipeg 3rd floor, 145 McDermot Avenue Winnipeg, MB R3B 0R9 Tel: (204) 984-1929 Fax: (204) 983-0031 E-Mail: <a href="mailto:katherine.cumming@pc.gc.ca">katherine.cumming@pc.gc.ca</a></p>
<p>Rick Grabowecky Regional EA Coordinator Health Canada 510 Lagimodière Blvd. Winnipeg, MB R2J 3Y1 Tel: (204) 984-8318 Fax: (204) 983-5692 E-mail: <a href="mailto:rick_grabowecky@hc-sc.gc.ca">rick_grabowecky@hc-sc.gc.ca</a></p>	<p>Mark R. Bartley Department of National Defence Air Traffic Control Radar Systems PO Box 1000 Station Forces 9 Alert Blvd Astra ON K0K 3W0 Tel: (613) 392-2811 Ext. 7042 <a href="mailto:+windturbines@forces.gc.ca">+windturbines@forces.gc.ca</a></p>
<p>Tebesi Mosala Environmental Specialist Indian and Northern Affairs Environmental Planning and Management Unit 365 Hargrave St. Room 200 Winnipeg, MB R3B 3A3 Telephone: (204) 984-0711 Fax: (204) 983-3629 Email: <a href="mailto:mosalat@inac.gc.ca">mosalat@inac.gc.ca</a></p>	<p>The Canadian Broadcasting Corporation (CBC) Generic email inbox: <a href="mailto:eoliennes_windturbines@radio-canada.ca">eoliennes_windturbines@radio-canada.ca</a></p>
<p>Lori O'Brennan Industry Canada Spectrum, Information Technologies and Telecommunications 4th floor, 400 St. Mary Avenue Winnipeg, MB R3C 4K5 Tel: (204) 983-5554 Fax: (204) 984-6045 E-mail: <a href="mailto:obrennan.lori@ic.gc.ca">obrennan.lori@ic.gc.ca</a></p>	<p>Alex Beckstead Royal Canadian Mounted Police (RCMP) <a href="mailto:alex.beckstead@rcmp-grc.gc.ca">alex.beckstead@rcmp-grc.gc.ca</a></p>



Environmental Protection Operations Division  
Prairie & Northern  
123 Main Street, Suite 150  
Winnipeg, MB R3C 4W2

Our File No: 4194-10-5/2949  
4194-10-5/2779

Your File No.: MA-503

August 26, 2008

Ms. Teresa LeMay  
Environmental Assessment Officer  
Science and Policy Integration  
Natural Resources Canada  
580 Booth Street 3<sup>rd</sup> Floor  
Ottawa, Ontario K1A

Dear Ms. LeMay:

**RE: St. Joseph Wind Power Project (MA-503) Proposals**

In August 2008, Environment Canada (EC) received a copy of the St Joseph Wind Energy Project description from the Canadian Environmental Assessment Agency for review.

Environment Canada has reviewed the above project description for proposed construction and operation of a 300 MW (net of net electrical generation capacity) commercial wind energy facility by St Joseph's Wind Farm Inc. in the vicinity of the town of St Joseph approximately 85 Km south of Winnipeg. The project area overlaps the Rural Municipalities of Rhineland and Montcalm.

EC's interest relates primarily to our mandate under the Migratory Birds Convention Act and the Species at Risk Act.

EC provides the following comments

Orientation of the turbines.

Turbines are located in numerous strings that are oriented in an east west direction (Map 2.1). This may be problematic for birds and bats which tend to migrate in a north south direction. There are instances where birds or bats would need to successfully navigate through 7 and 8 rows of strings. This may increase mortality risk. EC recommends the proponent explore opportunities to



optimize siting of turbines to facilitate north south movement of birds and bats where feasible.

#### Lighting (s. 2.3.1.8, Page 15)

Lighting should be of minimum intensity and duration to minimize the attraction to neotropical migrants. Incandescent lighting should be avoided. Red and white LED and strobe lighting is currently available on the market that meets Transport Canada requirements and the proponent is encouraged to seek this out. EC notes the proponent's commitment to discuss lighting with the Canadian Wildlife Service (page 111).

#### Disruption of Bird Nests. (Page 83)

The Migratory Birds Convention Act prohibits the destruction of migratory bird's eggs and nests. To minimize disturbance to breeding migratory birds it is recommended that at minimum vegetation clearing avoid the period between April 15 and July 31. As noted by the proponent on page 86 (s. 5.6.3.1), should vegetation clearing be required during the breeding season, EC concurs with the recommendation to have a trained (avian) biologist survey the site for nests and identify no work zones until the young have fledged.

#### Mortality monitoring (page 86 and 90)

The report states that two years of detailed post construction mortality monitoring for birds and bats, including scavenger and searcher efficiency, should be undertaken. It is unclear whether this is merely a recommendation by the consultant or a commitment by the proponent. This requires clarification. EC recommends two years of monitoring and concurs that the monitoring program be developed with Environment Canada (namely Canadian Wildlife Service).

#### Follow-up and monitoring (s.5.6.3)

The proponent states that the collision effect for birds and bats is LOW and Not Significant however does not provide follow-up for residual effects in the event that mortality monitoring identifies issues. EC notes that there is only one operational wind farm in the province of Manitoba hence our understanding of potential effects in this province is limited. EC recommends the proponent provide a discussion on mitigation approaches or strategies it will consider in the event mortality monitoring identifies concerns.

#### Monarch Butterfly (SARA Special Concern)

As noted in our June 18 2006 letter to Andrew Ryckman an assessment of potential impacts to migrating Monarch Butterflies continues to remain absent. EC recommends that an assessment of the potential impacts of the project be





Environment  
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undertaken for the Monarch Butterfly and that post construction avian and bat mortality monitoring include provisions for the Monarch Butterfly.

If you have any question, please contact me at (204) 984-3522.

Yours sincerely,

Reg. B. Ejeckam, *MSc. P. Geo.*  
Environmental Assessment Coordinator  
Environment Protection Operations Div.  
Phone: (204) 984-3522;  
Fax: (204) 983-0960  
E-mail [reg.ejeckam@ec.gc.ca](mailto:reg.ejeckam@ec.gc.ca)  
Internet: [www.ec.gc.ca](http://www.ec.gc.ca)

Cc: Wendy Botkin, CEAA;





Natural Resources  
Canada

Ressources naturelles  
Canada

September 03, 2008

File: MA-503

Ms. Wendy Botkin  
Senior Program Officer  
Canadian Environmental Assessment Agency

**Subject: Comments on the Draft Environmental Impact Statement- St.  
Joseph Wind Power Project**

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Dear Ms. Botkin,

NRCAN has reviewed the Draft Application/Environmental Impact Statement for the St. Joseph Wind Power Project and has provided comments which can be found below.

Should you have any questions regarding NRCAN's comments, please do not hesitate to contact me by phone at (613) 992-8791 or by e-mail at [tlemay@nrcan.gc.ca](mailto:tlemay@nrcan.gc.ca)

Sincerely,

Teresa LeMay  
Environmental Assessment Officer

Canada





## **NRCan Comments on the Draft Application/Environmental Impact Statement for the St. Joseph Wind Power Project**

### **General Comments**

Overall NRCan agrees that this was a well done first draft of the proponents EIS; it provided as many details as the proponent may have had available at this point in time. However, NRCan believes that there are areas that will require additional information.

### **Scope of Assessment/Project**

There is no scope of project or scope of assessment section; a scope of project and assessment that is clearly defined (as per the WPPI guidelines) would facilitate the RA's review.

### **Specific Comments:**

#### **Table 1.1 – pg. 5**

In this table, in the second column, the proponent states that NRCan, EC, HC and INAC will be taking a decision on the Environmental Screening Report. Please note that as the sole RA under the CEAA, NRCan is the only Federal Department to be taking a decision in relation to this document. EC, HC, and INAC would be considered Federal Authorities which means that they would only be providing expert specialist advice towards the creation of this final document.

In addition, NRCan received confirmation from INAC on August 20<sup>th</sup>, 2008 that they would not be participating as an FA for the Environmental Assessment of this project.

#### **Section 3.1 - Permanent dwellings**

It would be useful to include a table of all the permanent dwellings and their distances from the turbines. The proponent provides some detail (closest dwelling no more than 550 metres from turbine), however more information would be beneficial. Names of all the people who are receiving compensation would also be useful information to have. Considering the size of this project, in addition to the fact that all turbines are on private land, more information in this area would be beneficial to this projects review.

#### **5.1.3 - Noise**

Following on the above comments, a list of all the receptors and their distances from the turbines would also be useful for this projects review.



### **Section - 2.2.1 Turbines**

There is no certainty yet as to the number of turbines and their size. It could be 200 turbines at 1.5 MW but if the proponent chooses use larger turbines (2.0 MW etc) the turbines will be less in number. The sooner this is known and communicated to NRCan the better.

We will also require the specific locations of these turbines. This information is not only required by NRCan to fulfill its assessment of this project, but must also be provided to CBC, DND, and the RCMP.

### **Section 2.3.3.5 - Temporary concrete batch plant**

The EIS does not address the potential effects on the construction, operation or decommissioning of the temporary plant if it is the chosen option. If the temporary plant is part of the scope of the project this information should be included and evaluated in the Environmental Impact Statement.

### **2.3.3.7 Gravel Pits**

Additional information needs to be provided in this section. An estimate of the amount of aggregate to be required would be useful, as well as proposed sources for this aggregate.

### **Table 2.7 – Project Activities during construction phase**

More clarification is necessary in this section of the EIS– i.e. how much deforestation must take place?



Health Canada Santé Canada

Safe Environments Directorate  
510 Lagimodière Blvd.  
Winnipeg, MB R2J 3Y1

Our file ON-2008/09-005

Sept 8, 2008

Teresa LeMay  
Natural Resources Canada  
580 Booth St  
Ottawa, ON K1A 0E4

Sent by e-mail to: tlemay@NRCan.gc.ca

**Subject: Health Canada's Review of the Environmental Impact Study Report for the St. Joseph Wind Energy Project**

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Dear Ms LeMay,

This letter is in response to Health Canada's review of BoArk Energy Ltd.'s Environmental Impact Study Report (EISR) for the St. Joseph Wind Energy Project dated July, 2008. Health Canada is participating as a Federal Authority in this environmental review under the provisions of the *Canadian Environmental Assessment Act* as per NRCan's e-mail request of July 31, 2008.

We have reviewed the EISR and have the following comments related to noise:

1. The EISR does not provide information regarding the existence of facilities with sensitive noise receptors in the project area including daycares, schools, hospitals or senior's centres. It is advisable to consider any such sensitive receptors identified in the project area for additional mitigation as appropriate. If there are none, this should be stated.
2. Map 5.1 of the EISR provides simulated noise isocontours using sound power levels for the wind turbines of 103.7 dBA at a wind speed of 6 m/s. However, table 2-3 of the EISR reports a noise emission specification ranging from 103.7 to 107.3 dBA at a wind speed of 6 m/s. It is prudent that the more conservative end of the range provided (i.e 107.3 dBA) be used to calculate the noise isocontours.
3. Similarly, the noise power results were modeled using the single wind speed of 6 m/s. Section 5.14 indicates that the wind turbines would operate within the range of 3m/s to 25 m/s. For typical relationships between wind turbine sound power and wind speed, an assessment at only 6 m/s does not fully account for potentially substantial increases in the percentage highly annoyed with wind turbine noise once the wind turbine project becomes operational. Therefore it is advisable that the predicted sound power emissions from the project be reported as a function of a range of representative operational wind speeds.

4. In quiet rural areas, Health Canada recommends that technically and economically feasible mitigation be applied if the predicted sound level at receptors due to wind turbine operation exceeds 45 dBA. The prediction is to be determined using the wind speed yielding the maximum sound power from the wind turbine.

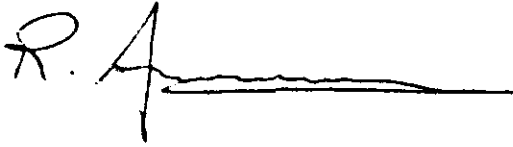
Health Canada uses a 45 dBA criterion limit for the sound level at receptors due to wind turbine operation in quiet rural areas to reduce or eliminate the potential of adverse health effects including; disturbance of rest and sleep; interference with speech communication, psycho-physiological effects, mental-health and performance effects; effects on residential behavior and annoyance; and interference with intended activities (HC, 2005, WHO, 1999). Assuming constant noise, the World Health Organization, (WHO), sleep guideline value of 30 dBA indoors (estimated 45 dBA outdoors for partially open windows) is one rationale (WHO, 1999). A draft criterion based on an increase of 6.5% increase in the percentage highly annoyed for a quiet rural area is also currently used by Health Canada (ISO1996-1 2003). It suggests a criterion level of about 43 dBA for a project Leq 24 (Michaud et al., 2007). Taking all of these criteria into account the use of a 45 dBA limit seems reasonable, assuming that the noise estimate is a worst case level based on favorable propagation conditions and the highest turbine noise level.

Please provide the predicted noise levels at the receptors due to the wind turbine at conditions of maximum noise output to determine compliance to the above criteria. Please also provide the worst case predicted levels for wind turbine operation (also see the preceding # 2 and #3 items). Please calculate the sound propagation as if all receptors were downwind of the turbine, regardless of their actual position. Mitigation measures would be advisable if the predicted noise levels are in exceedance of the 45 dBA described above. A complaint resolution process would be also advisable in the event of public complaints.

5. Health Canada notes that due to uncertainty in sound predictions, there is a possibility that the Leq at the receptor may exceed 45 dBA during operations. As such, Health Canada suggests that if, for the maximum sound power from the wind turbine, the predicted operational Leq is within 3 dB of 45 dBA (i.e., the typical estimated uncertainty for modeling), it would be advisable that the proponent have a mitigation plan including a complaint resolution procedure and a monitoring program to validate the predicted sound levels during operation.

Please contact this office at the coordinates below should you have any questions regarding the comments provided.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. A.', followed by a long horizontal line that tapers to the right.

Rick Grabowecky  
Regional Environmental Assessment Coordinator  
Manitoba-Saskatchewan Region  
Ph # (204) 984-8318 Fax # (204) 983-5692  
Rick\_Grabowecky@hc-sc.gc.ca

cc: Stan Hnatiuk (HC)  
Anne-Marie LaFortune (HC – Senior Environmental Assessment Advisor)  
Wendy Botkin (CEAA)

#### REFERENCES

Health Canada, 2005. Acoustics Division. "Health Canada Wind Turbine Fact Sheet – Draft.

ISO 1996-1, 2003. "Acoustics - Description, measurement and assessment of environmental noise - Part 1: Basic quantities and assessment procedures". International Organization for Standardization, Switzerland

Michaud, D.S., Keith, S.E., Bly, S.H.P, 2007. "A Proposal for Evaluating the Potential Health Effects of Wind Turbine Noise for Projects Under the Canadian Environmental Assessment Act". Presented at the Second International Meeting on Wind Turbine Noise, Sept 20-21, 2007 in Lyon, France

World Health Organization .1999. "Guidelines for Community Noise," Geneva, WHO.



# HIGH-PRESSURE DIRECTIONAL DRILLING

Fisheries and Oceans Canada  
Manitoba Operational Statement

Version 3.0

For the purpose of this Operational Statement, the term High-Pressure Directional Drilling (HPDD) means trenchless methods of crossing a watercourse using pressurized mud systems. HPDD is used to install cables and pipelines for gas, telecommunications, fibre optics, power, sewer, oil and water lines underneath watercourses and roads. This method is preferable to open-cut and isolated crossings since the cable or pipeline is drilled underneath the watercourse with very little disturbance to the bed or banks. HPDD involves drilling a pilot bore hole underneath the watercourse towards a surface target, back-reaming the bore hole to the drill rig while pulling the pipe along through the hole. This process typically uses the freshwater gel mud system composed of a mixture of clean, freshwater as the base, bentonite (clay-based drilling lubricant) as the viscosifier and synthetic polymers.

The general order of preference for carrying out a cable or pipeline stream crossing in order to protect fish and fish habitat is: a) a punch or bore crossing (see *Punch & Bore Crossings Operational Statement*), b) HPDD crossing, c) dry open-cut crossing, and d) isolated open-cut crossing (see *Isolated or Dry Open-cut Stream Crossings Operational Statement*). This order must be balanced with practical considerations at the site.

One of the risks associated with HPDD is the escape of drilling mud into the environment as a result of a spill, tunnel collapse or the rupture of mud to the surface, commonly known as "frac-out". A frac-out is caused when excessive drilling pressure results in drilling mud propagating toward the surface. The risk of a frac-out can be reduced through proper geotechnical assessment practices and drill planning and execution. The extent of a frac-out can be limited by careful monitoring and having appropriate equipment and response plans ready in the event that one occurs. HPDD can also result in excessive disturbance of riparian vegetation and sedimentation and erosion due to operation of equipment on the shoreline or fording to access the opposite bank.

Fisheries and Oceans Canada (DFO) is responsible for protecting fish and fish habitat across Canada. Under the *Fisheries Act* no one may carry out a work or undertaking that will cause the harmful alteration, disruption or destruction (HADD) of fish habitat unless it has been authorized by DFO. By following the conditions and measures set out below you will be in compliance with subsection 35(1) of the *Fisheries Act*.

The purpose of this Operational Statement is to describe the conditions under which it is applicable to your project and the measures to incorporate into your project in order to avoid negative impacts to fish habitat. You may proceed with your

high-pressure directional drill project without a DFO review when you meet the following conditions:

- the crossing technique will not damage the stream bed and thereby negatively impact fish or fish habitat,
- the crossing is not a wet open-cut crossing,
- you have an emergency frac-out response plan and a contingency crossing plan in place that outline the protocol to monitor, contain and clean-up a potential frac-out and an alternative method for carrying out the crossing, and
- you incorporate the *Measures to Protect Fish and Fish Habitat when High-Pressure Directional Drilling* listed below in this Operational Statement.

If you cannot meet all of the conditions listed above and cannot incorporate all of the measures listed below then your project may result in a violation of subsection 35(1) of the *Fisheries Act* and you could be subject to enforcement action. In this case, you should contact the DFO office in your area if you wish to obtain DFO's opinion on the possible options you should consider to avoid contravention of the *Fisheries Act*.

**You are required to respect all municipal, provincial or federal legislation that applies to the work being carried out in relation to this Operational Statement.** The activities undertaken in this Operational Statement must also comply with the *Species at Risk Act* ([www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)). If you have questions regarding this Operational Statement, please contact the DFO office in your area (see Manitoba DFO office list).

We ask that you notify DFO, preferably 10 working days before starting your work by filling out and sending the Manitoba Operational Statement notification form ([www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/prov-terr/index\\_e.htm](http://www.dfo-mpo.gc.ca/regions/central/habitat/os-eo/prov-terr/index_e.htm)) to the DFO office in your area. This information is requested in order to evaluate the effectiveness of the work carried out in relation to this Operational Statement.

## Measures to Protect Fish and Fish Habitat when High-Pressure Directional Drilling

1. Use existing trails, roads or cut lines wherever possible, as access routes to avoid disturbance to the riparian vegetation.
2. Design the drill path to an appropriate depth below the watercourse to minimize the risk of frac-out and to a depth

to prevent the line from becoming exposed due to natural scouring of the stream bed. The drill entry and exit points are far enough from the banks of the watercourse to have minimal impact on these areas.

3. While this Operational Statement does not cover the clearing of riparian vegetation, the removal of select plants may be necessary to access the construction site. This removal should be kept to a minimum and within the road or utility right-of-way.
4. Machinery fording the watercourse to bring equipment required for construction to the opposite side is limited to a one-time event (over and back) and should occur only if an existing crossing at another location is not available or practical to use. A *Temporary Stream Crossing Operational Statement* is also available.
  - 4.1. If minor rutting is likely to occur, stream bank and bed protection methods (e.g., swamp mats, pads) should be used provided they do not constrict flows or block fish passage.
  - 4.2. Grading of the stream banks for the approaches should not occur.
  - 4.3. If the stream bed and banks are steep and highly erodible (e.g., dominated by organic materials and silts) and erosion and degradation are likely to occur as a result of equipment fording, then a temporary crossing structure or other practice should be used to protect these areas.
  - 4.4. Time the one-time fording to prevent disruption to sensitive fish life stages by adhering to appropriate fisheries timing windows (see the Manitoba In-Water Construction Timing Windows).
  - 4.5. Fording should occur under low flow conditions and not when flows are elevated due to local rain events or seasonal flooding.
5. Operate machinery on land above the ordinary high water mark (see definition below) and in a manner that minimizes disturbance to the banks of the watercourse.
  - 5.1. Machinery is to arrive on site in a clean condition and is to be maintained free of fluid leaks.
  - 5.2. Wash, refuel and service machinery and store fuel and other materials for the machinery away from the water to prevent any deleterious substance from entering the water.
  - 5.3. Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
  - 5.4. Restore banks to original condition if any disturbance occurs.
6. Construct a dugout/settling basin at the drilling exit site to contain drilling mud to prevent sediment and other deleterious substances from entering the watercourse. If this cannot be achieved, use silt fences or other effective sediment and erosion control measures to prevent drilling mud from entering the watercourse. Inspect these measures regularly during the course of construction and make all necessary repairs if any damage occurs.

- 6.1. Dispose of excess drilling mud, cuttings and other waste materials at an adequately sized disposal facility located away from the water to prevent it from entering the watercourse.

7. Monitor the watercourse to observe signs of surface migration (frac-out) of drilling mud during all phases of construction.

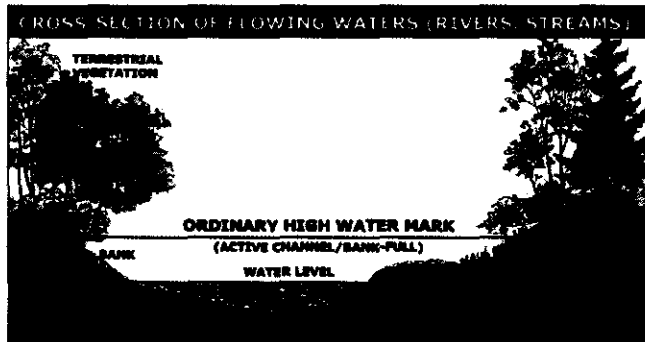
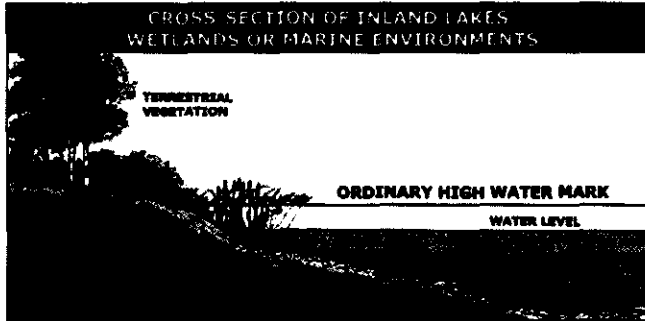
#### **Emergency Frac-out Response and Contingency Planning**

8. Keep all material and equipment needed to contain and clean up drilling mud releases on site and readily accessible in the event of a frac-out.
9. Implement the frac-out response plan that includes measures to stop work, contain the drilling mud and prevent its further migration into the watercourse and notify all applicable authorities, including the closest DFO office in the area (see Manitoba DFO office list). Prioritize clean up activities relative to the risk of potential harm and dispose of the drilling mud in a manner that prevents reentry into the watercourse.
10. Ensure clean up measures do not result in greater damage to the banks and watercourse than from leaving the drilling mud in place.
11. Implement the contingency crossing plan including measures to either re-drill at a more appropriate location or to isolate the watercourse to complete the crossing at the current location. See *Isolated or Dry Open-cut Stream Crossings Operational Statement* for carrying out an isolated trenched crossing.
12. Stabilize any waste materials removed from the work site to prevent them from entering the watercourse. This could include covering spoil piles with biodegradable mats or tarps or planting them with preferably native grass or shrubs.
13. Vegetate any disturbed areas by planting and seeding preferably with native trees, shrubs or grasses and cover such areas with mulch to prevent erosion and to help seeds germinate. If there is insufficient time remaining in the growing season, the site should be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring.
  - 13.1. Maintain effective sediment and erosion control measures until re-vegetation of disturbed areas is achieved.

## FISHERIES AND OCEANS CANADA OFFICES IN MANITOBA

### Definition:

**Ordinary high water mark** – The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land. In flowing waters (rivers, streams) this refers to the "active channel/bank-full level" which is often the 1:2 year flood flow return level. In inland lakes, wetlands or marine environments it refers to those parts of the water body bed and banks that are frequently flooded by water so as to leave a mark on the land and where the natural vegetation changes from predominately aquatic vegetation to terrestrial vegetation (excepting water tolerant species). For reservoirs this refers to normal high operating levels (Full Supply Level).



### Winnipeg Office

Fisheries and Oceans Canada  
Freshwater Institute  
501 University Crescent  
Winnipeg, Manitoba  
R3T 2N6  
Tel: (204) 983-5163  
Fax: (204) 984-2402

### Dauphin Office

Fisheries and Oceans Canada  
101-1st Avenue N.W.  
Dauphin, Manitoba  
R7N 1G8  
Tel: (204) 622-4060  
Fax: (204) 622-4066

*Aussi disponible en français*

[http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/epmp-pmpe/index\\_f.asp](http://www.dfo-mpo.gc.ca/oceans-habitat/habitat/modernizing-moderniser/epmp-pmpe/index_f.asp)

DFO/2007-1329

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Parks Canada  
145 McDermot Ave.  
Winnipeg, MB  
R3B 0R9

September 5, 2008

Ms. Wendy Botkin  
Canadian Environmental Assessment Agency  
123 Main St. Suite 445  
Winnipeg, MB  
R3C 4W2

Re: St. Joseph Wind Energy Project - Manitoba

Dear Ms. Botkin,

Parks Canada has reviewed the *St. Joseph Wind Energy Project: Environmental Impact Study Report (Volume 1)*. Parks Canada is providing advice pursuant to section 12(3) of the *Canadian Environmental Assessment Act (CEAA)* and consistent with Parks Canada's recognition in the CEAA Reference Guide, *Involving Expert Federal Authorities*, as an expert federal authority in:

- I. cultural resources
- II. historical, archaeological, paleontological and architectural resources
- III. management of protected areas, national parks, national historic sites, historic rivers and heritage canals

The village of Neubergthal was designated a National Historic Site of Canada by the Government of Canada in 1989. On behalf of the Government of Canada, Parks Canada is the lead agency for National Historic Sites. Parks Canada works with the owners, operators and stewards of these nationally significant places for the benefit of current and future generations. Please find the attached comments on the potential impacts of this project on Neubergthal Street Village National Historic Site of Canada.

Sincerely,

Katherine Cumming  
Environmental Assessment Scientist  
cc: Teresa LeMay, Natural Resources Canada  
David Hems, Cultural Resources Manager, Parks Canada  
Frieda Klippenstein, Historian, Parks Canada



## **Review of the St. Joseph Wind Energy Project: Environmental Impact Study Report (Volume 1)**

### **Context of Parks Canada's Interest**

Parks Canada has reviewed the *St. Joseph Wind Energy Project: Environmental Impact Study Report (Volume 1)*. Parks Canada is providing the following advice pursuant to section 12(3) of the *Canadian Environmental Assessment Act (CEAA)* and consistent with Parks Canada's recognition in the CEAA Reference Guide, *Involving Expert Federal Authorities*, as an expert federal authority in:

- I. cultural resources
- II. historical, archaeological, paleontological and architectural resources
- III. management of protected areas, national parks, national historic sites, historic rivers and heritage canals

The village of Neubergthal was designated a National Historic Site of Canada by the Government of Canada in 1989. On behalf of the Government of Canada, Parks Canada is the lead agency for National Historic Sites. Parks Canada works with the owners, operators and stewards of these nationally significant places for the benefit of current and future generations.

### **Neubergthal Street Village National Historic Site of Canada**

Based on the recommendation of The Historic Sites and Monuments Board of Canada the commemorative intent of Neubergthal Street Village National Historic Site of Canada is as follows:

Mennonite Street Villages are Prairie settlement forms of both national historic and architectural significance and they are commemorated at Neubergthal, Manitoba, which not only possesses a considerable amount of resource integrity but an apparently unique 'sense of place'.

Arriving in 1874-1881, Mennonites were the first large group of immigrants to settle successfully on the wide-open prairies of Manitoba, a feat previously considered impossible because of the lack of resources needed for survival. Neubergthal is an excellent example of a typical Mennonite Street village on the Canadian Prairies. The street village architecture was a good model for settlement. It required close interaction and co-operation among residents. Neubergthal continues to project a strong sense of place today. While the communal, open field system of farming has long since been replaced with farming on individually owned lands, and the uniformity of the earlier village formation has given way to diversity, in Neubergthal the central village street remains the prominent orientation.



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The designation of Nebergthal is not typical in Canada's system of National Historic Sites because it is an area designation, which includes the entire village, comprised largely of private lands. Yet the importance of protecting the commemorative integrity of this cultural landscape remains. Parks Canada has described commemorative integrity as follows.

The concept of commemorative integrity is used to describe the health or wholeness of a national historic site. A national historic site possesses commemorative integrity when the resources that symbolise or represent its importance are not impaired or under threat, when the reasons for the site's national historic significance are effectively communicated to the public, and when the site's heritage values are respected by all whose decisions or actions affect the site.

The landscape surrounding Nebergthal Street Village National Historic Site of Canada is important to protecting the commemorative integrity of the recognized settlement pattern because it contributes to the "sense of place" by contrasting the wide-open prairie with the village structure. In particular the surrounding landscape contributes to "sense of place" when visitors are approaching and entering the village. As a visitor enters the village he or she observes the contrast between the open prairie and the village. The surrounding landscape is a key component in communicating the reasons for the site's national significance to the public, an important element of commemorative integrity. The Commemorative Integrity Statement for Nebergthal Street Village National Historic Site of Canada states that the site will be safeguarded and understood when:

the meaning of the immediate and larger landscape is revealed through interpretation thereby increasing understanding of its value and support for its preservation.

Nebergthal Street Village National Historic Site as a cultural landscape requires a great deal of sensitivity to its landscape character to maintain one of its key heritage values a "unique sense of place" as defined by the Historic Sites and Monuments Board of Canada.

### **Assessment of the EIS with respect to Nebergthal Street Village National Historic Site of Canada**

Given Parks Canada's mandate in relation to national historic sites and role as a Federal Authority reviewing the *St. Joseph Wind Energy Project – Environmental Impact Study Report*, potential visual impacts relative to the placement of some turbines near Nebergthal Street Village National Historic Site were identified prior to the official environmental assessment process. Parks Canada provided information to Bowark Energy Ltd. about the national historic site and its significance. In addition, after concerns were raised by community stakeholders about visual impacts, Bowark Energy Ltd. met with community members. This meeting served to

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ensure visual impact assessment was conducted and community members had an opportunity to express concerns. The efforts made by Bowark Energy Ltd. to produce the visual stimulation has provided Parks Canada an opportunity to make a more informed assessment of potential visual effects on the site.

The St. Joseph Wind Energy Project Environmental Impact Study (section 5.14.2.3 - Neubergthal Landscapes) concludes “considering that turbines will be seen from relatively few view points on the east side of the Village, and that consultation with representatives from the Village of Neubergthal resulted in the relocation of four turbines, the resulting expected visual impact on Neubergthal is considered low, and not significant.” However, a review of the visual simulations brings into question the assessment that there are few viewpoints and the visual impact is low.

As a result of the meeting with community members, Bowark Energy Ltd. made a commitment to maintain a 3.2 kilometre buffer around the Village of Neubergthal and consequently four turbines were relocated. The relocation of the four turbines (139, 140, 141, and 142) identified in the Environmental Impact Statement technically meets the 3.2 kilometre criteria established in the discussion with community representatives and has lessened the magnitude of visual impact from the site along the northeast viewpoint.

However, the decision to relocate the four turbines along a new linear line directly east of the site has resulted in broadening the geographic extent of visual impact when seen in relation to the other visible wind turbines. This relocation has increased the number of eastern viewpoints for which the turbines are distinctively visible from the community. It also affects the visitor’s view and understanding of the village’s defining characteristics as a community settlement pattern on the open prairie, as these four turbines line the entry to the village on the primary route of arrival. In addition, there appear to be new turbines placed towards the south-eastern edge of the village. The following specific observations were made from the visual simulations provided in Appendix E.

#### Visual Simulation 5 (View from Neubergthal Information Kiosk)

- Turbines (154 – 158) are prominent landscape features in the centre of this visual stimulation.
- Turbines (139 –142) are in alignment with the Historic Sites and Monuments Board Plaque, the primary location from which most visitors will be introduced to the site.

#### Visual Simulation 6 (View from the Balcony of Neubergthal Interpretive Centre)

- Due to the height of the cottonwoods, the visual impact will be low from this viewpoint.

#### Visual Simulation 7 (View from Neubergthal Street Village Northern End)



- Turbines 123 to 128 are very distinctive landscape features in the center of this visual plane.

Visual Simulation 8 (View from Backyard of P. Klippenstein Site, next to Neubergthal Cemetery)

- The relocated turbines (139, 140, 141 and 142) are very distinctive landscape features on the right-hand side of the photograph.

After review of the visual simulations it appears the likelihood of visual impact occurring over a broad geographic extent is high. The effort to relocate the wind turbines, although decreasing the magnitude of impact along one visual plane has increased the overall residual impact of the wind turbines on Neubergthal Street Village National Historic Site. The overall broad extent of the visual impact and the duration for which it will exist raises questions as to whether the impact on Neubergthal National Historic Site is low and insignificant as concluded in the Environmental Impact Statement.

### **Conclusion**

The *Standards and Guidelines for the Conservation of Historic Places in Canada* (Parks Canada, 2001) provide guidance on the best way to conserve heritage places and have been adopted by Parks Canada and the Province of Manitoba. The *Guidelines* recommend:

preserving viewscales such as vistas, views, aspects, visual axes and sight lines that may (or may not) be framed by vertical features or terminate in a focal point — that are important in defining the overall heritage value of the landscape.

The *Guidelines* recommend not:

removing or radically changing viewscales that are important in defining the overall character of the landscape.

The visible expanse of the turbines on a flat prairie landscape in concert with the broadened extent of visual impact from the relocated turbines will have a long-term effect (minimally 20 - 25 years, the identified lifespan of the turbines) over a wide geographic extent covering a number of viewpoints. Parks Canada has concerns that this project is not in keeping with the *Standards and Guidelines for the Conservation of Historic Places in Canada* and will have an overall negative effect on the “sense of place” identified as a key heritage value associated with Neubergthal Street Village National Historic Site. To assist in mitigating the geographic extent of the visual impact on Neubergthal Street Village National Historic Site, Parks Canada has the following recommendations.



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1. Parks Canada recommends turbines 139-142 are removed from their proposed location on map 5.2, dated July 16, 2008. These turbines are highly intrusive on the sense of place for visitors when entering the village, as they are located along Highway 421, the main point of entry to the site. These turbines also greatly broaden the visual impact on the village because there are no other turbines on this line of site and they align with the centre of the village. Therefore Parks Canada recommends that there should be no turbines:
  - within 3.2 kilometres of the village, nor
  - on the 9 sections to the east of Neubergthal (1-2-1-W, 36-1-1-W, 25-1-1-W, 6-2-1-E, 5-2-1-E, 31-1-1-E, 32-1-1-E, 30-1-1-E, 29-1-1-E), nor
  - within 5 miles of the village along Highway 421 to protect that line of sight when accessing the community.
  
2. Parks Canada recommends turbines 123 –128 and turbines 154 –158 are removed from their proposed location on map 5.2, dated July 16, 2008. Both lines are very visible along northeast and southeast planes respectively. Therefore Parks Canada recommends that there should be no turbines:
  - within 3.2 kilometres of the village, nor
  - on the 9 sections to the east of Neubergthal (1-2-1-W, 36-1-1-W, 25-1-1-W, 6-2-1-E, 5-2-1-E, 31-1-1-E, 32-1-1-E, 30-1-1-E, 29-1-1-E), nor
  - within 5 miles of the village along Highway 421 to protect that line of sight.